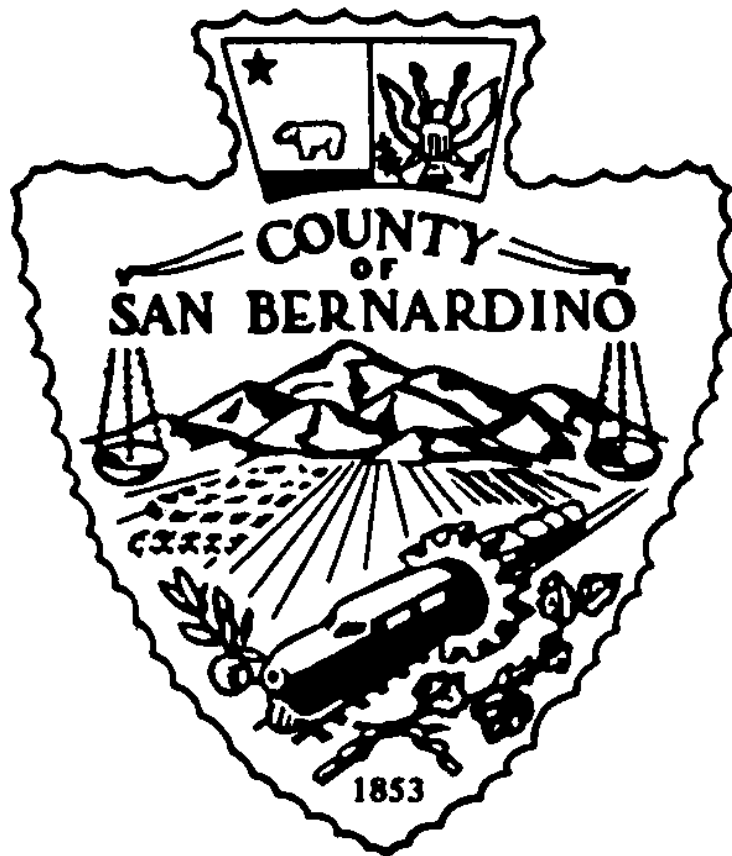


Elevated Locations



County of San Bernardino

WORKING ON ELEVATED LOCATIONS

SCOPE

This document establishes the County of San Bernardino procedures for working on elevated locations. It provides information and guidance on the procedure for inspection, climbing, rescue and general safe work practices while working aloft. This program identifies documentation, communication, and training necessary to ensure the health and safety of County employees. This procedure sets forth minimum safety standards for all County departments. Individual departments may implement more stringent standards. Copies of department prepared programs shall be included in the Employee Safety & Health Manual "Elevated Work" section following divider labeled "Department Program". Copies of these programs shall also be provided to Risk Management Division/Safety Section.

This program does not apply to work from portable ladders or from platforms (that are elevated above the surrounding area) that are equipped with standard railings. This program does not apply to elevated seating locations on vehicles when the seats are equipped with seatbelts.

This program is not applicable to San Bernardino County Fire Department rescue operations and training for rescue operations as long as these activities are performed under the guidance of applicable Cal/OSHA standards (T8 CCR), NFPA standards, and California State Fire Training standards.

PURPOSE

Title 8, California Code of Regulations, General Industry Safety Orders, Section 3203, requires employers to establish a written safety program specific to the hazardous conditions for which employees may encounter. This program shall include compliance, training, communication, inspections, and record keeping. Safety standards, for work at specific elevated locations, are detailed in both the General Safety Orders and the Construction Safety Orders.

INTRODUCTION

Work at elevated locations requires specialized skills, equipment, and experience. Proper supervision and training can greatly reduce the risk of accidents. It is the intention of the County of San Bernardino that accidents of any type be prevented.

Generally, line-of-sight radio/microwave operations requirements necessitate the use of towers and masts with associated antennae at locations in remote areas. The remoteness of these locations, in combination with the high risk of injury, make it imperative that rigid safety practices be followed to control existing hazards and prevent possible accidents.

While other elevated work locations may be less remote, the high risk of injury during an incident dictates the use of standard procedures, in combination with training and appropriate equipment, to control the existing hazards

RESPONSIBILITY AND AUTHORITY

County of San Bernardino Policy establishes that Assistant Administrative Officers, Department Heads and Directors of Board Governed Special Districts are the responsible individuals for implementation and maintenance of the Injury and Illness Prevention Program (IIPP). Hazard analysis, hazard abatement, and employee safety training are mandatory parts of this program. This document details County of San Bernardino implementation of the IIPP for work at elevated locations.

GENERAL DEFINITIONS

Anchorage A secure point of attachment for lifelines, lanyards or deceleration devices. Fixed anchorages are capable of withstanding a load of 5,000 pounds for each employee attached. Anchorages must be independent of attachment points for devices that support or suspend employees. Anchorage points on mobile equipment are specified by the manufacturer.

Approved Certified by the manufacturer as being compliant with the most current editions of applicable consensus standards. (See the Safety Equipment section of this document.)

Body Belt A strap capable of both being secured about the waist and being attached to a lanyard, lifeline, or deceleration device. In County of San Bernardino operations, body belts are not acceptable, during construction activities, as a

part of a personal fall arrest system. Body belts are acceptable as part of a positioning system when use is compliant with applicable portions of T8 CCR.

Body Harness An assemblage of straps which may be secured about the employee in a manner to distribute the fall arrest forces over the thighs, pelvis, waist, chest, and shoulders. Harnesses are capable of being attached to other components of a personal fall arrest system.

Buckle Any device for holding the body belt or body harness closed around the employee's body.

Competent Person An individual who has received formal and on-the-job training in all aspects of the type of elevated work being done. This person is able to recognize existing and predictable hazardous conditions and practices and is authorized to take appropriate actions when they are recognized.

Construction Activities in connection with the construction, alteration, painting, repairing, construction maintenance, renovation, removal, or wrecking of any fixed structure or its parts.

Deceleration Device Any mechanism, such as a rope grab, rip stitch lanyard, specially woven lanyard, or automatic self retracting lifeline/lanyard, which serves to dissipate substantially the amount of energy during a fall arrest, or otherwise limits the energy imposed on an employee during the fall arrest.

Deceleration Distance The additional vertical distance of falling the employee travels, excluding lifeline elongation and free fall distance, before stopping, from the point at which the deceleration device begins to operate. It is measured as the distance of the location of an employee's body belt or body harness attachment point at the moment of activation (at the onset of fall arrest forces) of the deceleration device during a fall, and the location of that attachment point after the employee comes to a full stop.

Elevated Locations: For fixed work locations, all surfaces, over 7-1/2 feet above or below ground, which are not provided with standard guardrails and

where employee work performance requires movement to or on the elevated location.

For work on roofs (other than residential structures), elevated work locations are in excess of 20 feet above the surrounding ground surface. This type of work requires personal fall arrest systems if work is within six feet of a roof edge without a parapet that is at least 24 inches high or other, approved, devices.

For all work on poles, towers or similar structures, elevated locations are more than four (4) feet above the ground. These locations require employees to use fall arrest equipment, work positioning equipment, or travel restricting equipment if other fall protection methods (e.g., guardrails, safety nets, etc.) have not been provided. (See T8 CCR 2940.6 or T8 CCR 8615(g))

Work from elevating work platforms (including those that are vehicle mounted or on self-propelled equipment) requires the use of fall prevention equipment. These operations shall comply with Article 12 and Article 24 of the General Industry Safety Orders and shall limit the free fall distance to two (2) feet.

Work from scaffolding requires guardrails and/or restraints. Scaffold operations shall be coordinated with Risk Management – Safety before they start.

Free Fall The act of unrestrained falling before the personal fall arrest system begins to apply force to arrest the fall.

Free Fall Distance The vertical displacement of the fall arrest attachment point on the employee's body belt or body harness between onset of the fall and just before the system begins to apply force to arrest the fall. This distance excludes deceleration distance, lifeline and lanyard elongation, but includes any deceleration device slide distance or self retracting lifeline/lanyard extension before they operate and fall arrest forces occur.

Lanyard A flexible line of rope, wire rope or strap which is used to secure a body belt or body harness to a deceleration device, lifeline or anchorage.

Lead Climber Where structure climbing is required, this is the individual who is in charge of the elevated work.

Lifeline A component of the restraint or fall arrest system that consists of a flexible line for

connection to an anchorage at one end in order to hang vertically, or for connection to anchorages at both ends to stretch horizontally. The lifeline serves as a means for connecting other components of a personal fall arrest system to the anchorage.

Personal Fall Arrest System A System used to arrest an employee in a fall from a working level. It consists of an anchorage, connectors, a body harness and includes a lanyard, deceleration device, lifeline, or a suitable combination of these.

Qualified Tree Worker An employee who, through related training and on-the-job experience, is knowledgeable and familiar with the techniques and hazards of tree maintenance and removal and the equipment used during these operations.

Self Retracting Lifeline/Lanyard A deceleration device which contains a drum-wound line which may be slowly extracted from, or retracted onto, the drum under slight tension during normal employee movement. In the event of a fall, the deceleration device automatically locks the drum and arrests the fall.

Snap-Hook A connector comprised of a hook-shaped member with a normally closed keeper, or similar arrangement, which may be opened to permit the hook to receive an object and, when released, automatically closes to retain the object. Snap-hooks are generally one of two types:

- 1) Consisting of a self closing, self locking keeper which remains closed and locked until unlocked and pressed open for connection or disconnection.
- 2) Non-locking with a self closing keeper which remains closed until pressed for connection or disconnection. The use of non-locking snap-hooks has been prohibited since January 1, 1998.

Tie-Off The act of an employee, wearing a personal fall protection equipment, connecting directly or indirectly to an anchorage. It also means the condition of an employee being connected to an anchorage.

ELEVATED LOCATIONS SAFETY MANUAL

During operations at any elevated work location, an Elevated Locations Safety Manual shall remain at the site for which work on such locations is being performed. The manual shall include as a minimum the following:

- 1) Code of Safe Work Practices included as page 185.4 of this program.
- 2) Specifications of all pulleys, ropes, lines, power equipment, and all tools and/or equipment, that will be used during the required task, that is critical to the safety of the employee.
- 3) Equipment Safety Checklist included as page 185.3 of this program.
- 4) A operation/site specific Emergency Action Plan developed by the department and in compliance with Title 8 CCR Section 3220. This plan will include procedures for the rescue of employees from elevated work locations.
- 5) Applicable rope knots and hand signals to be used by the climber and ground attendant.
- 6) Documentation of tool and equipment inspections
- 7) Hazard Report forms.

TRAINING AND CERTIFICATION

In meeting the training requirements for both state and federal regulations, the County of San Bernardino shall use both on-the-job training and formal classroom training. Specific training shall include (as applicable):

- 1) Tool use and security.
- 2) Climbing techniques, personal fall arrest systems, climbing equipment and personal protective equipment.
- 3) Inspection of all equipment.
- 4) Use of fixed and extension ladders.
- 5) Use of slings and lines.
- 6) Required clearances from electrical transmission lines
- 7) First aid and cardiopulmonary resuscitation training.
- 8) Use and maintenance of the Elevated Locations Safety Manual.

Following the completion of the training program, the employee shall be required to demonstrate

competency in operating and climbing the equipment safely. A supplemental training program guide to be used in conjunction with this program is available from Risk Management/Safety Section.

Supplemental training of the employee shall be provided by the supervisor, as necessary, if the equipment used or other working conditions should change.

The supervisor must certify that employees have been trained by preparing a certification record which includes the identity of the person trained, the signature of the supervisor, or the person who conducted the training, and the date the training was completed. A copy of this certification shall be maintained in each employee's personnel file.

Annually, employees shall be required to be re-certified by their supervisor. Documentation of such re-certification shall be maintained in each employee's personnel file.

COMPLIANCE

Supervisors must ensure that employees comply with all work rules outlined in this policy and follow safe work practices outlined in the training program and listed on the operation/task specific Code of Safe Practices.

Progressive discipline shall be in accordance with established Human Resources rules. All discipline will be coordinated with the supporting Human Resources Officer.

HAZARD REPORTING

All employees who observe a hazard relating to the work at elevated locations shall complete a Hazard Report located in the Elevated Locations Safety Manual. Tree workers may make verbal reports to their immediate supervisor(s).

SAFETY EQUIPMENT

In County of San Bernardino operations at elevated work locations (other than those covered by the Telecommunications Safety Orders), all fall protection and fall arrest system components must be labeled as meeting the requirements of American

National Standards Institute (ANSI) standard A10.14-1991, American National Standard for Construction and Demolition Use, or ANSI standard Z359.1-1992, American National Standard Safety Requirements for Personal Fall Arrest Systems, Subsystems and Components.

Equipment used in telecommunications operations shall comply with the standards cited in the Telecommunications Safety Orders.

INSPECTIONS

Daily inspection of the elevated location, adjacent area, and protective systems shall be made by a competent person. The inspection shall include checks for evidence of a situation that could result in possible accidents, indications of failure of protective systems, hazardous atmospheres, or other hazardous conditions.

An inspection shall be conducted by the competent person prior to the start of work and as needed throughout the shift. Inspections shall also be made after every rainstorm, electrical storm, windstorm or other hazard increasing occurrence. These inspections are only required when employee exposure to danger can be reasonably anticipated.

Where the competent person finds evidence of a condition and/or practice that could result in a possible accident, indications of failure of protective systems, hazardous atmospheres, or other hazardous conditions, employees shall be removed from the hazardous area until the necessary precautions have been taken to ensure their safety.

Hoisting lines and all ropes, tackle blocks, hooks, rings, shackles and slings in service shall be inspected, by the competent person, prior to use. If any equipment is found on inspection to be worn, damaged or otherwise defective to an extent that it is unsafe, it shall be immediately removed from service and shall not again be used until made safe. Harnesses, hoisting lines, ropes and slings that are dirty or fluid soaked shall not be used until they are inspected by a competent person or the manufacturer.

RECORD KEEPING

Departments shall establish a procedure that ensures that occupational injury and illness prevention activities relating to working in elevated locations are documented. Such documentation shall include:

- A) Records of inspections, evaluation, and correction of unsafe conditions/practices;
- B) Records of employee training;
- C) Records of safety meetings;
- D) Records of accident investigations.

ACCIDENT INVESTIGATIONS

County policy establishes that individual supervisors are responsible for conducting an investigation or inquiry into all occupational illness/injury/exposure incidents and "near miss" situations that occur within their areas of responsibility.

Due to the high potential for injury as the result of an accident, while working on an elevated location, it is imperative that supervisors respond to any elevated location where an accident has occurred, while aloft, and conduct an investigation.

Investigation reports shall be reviewed on a regular basis by department management, safety committees, climbers, ground crew, or other appropriate individuals. Guidelines and appropriate forms for conducting an accident investigation may be found in the County of San Bernardino, Employee Safety and Health Manual.

TOOL USE

Employees shall be provided proper tools and trained in the use of these tools. Tools and equipment shall be inspected by a competent person to determine that they are in good condition -BEFORE USE-. Defective tools and equipment shall be removed from service. Documentation of each inspection shall be placed in the Elevated Locations Safety Manual. Completed inspection reports shall be removed quarterly and maintained in the department for three calendar years beyond the year of origination. Tree worker inspection reports may be removed to department files monthly.

FIXED LADDERS

Fixed ladders must:

- 1) Be designed to withstand a single concentrated load of at least 250 lbs.

- 2) Have rungs with a minimum diameter of 3/4 inches for metal ladders or 1 1/8 inches for wood ladders.
- 3) Have rungs at least 16 inches wide and uniformly spaced no more than 12 inches vertically.
- 4) Have a clear width of 15 inches on every side of the centerline of the ladder (unless caged or wells).
- 5) Have 30 inches of clearance on the climbing side of the ladder (unless caged or in a well).
- 6) Have at least 7 inches of clearance in back of the ladder to provide for adequate toe space.
- 7) Have a pitch between 75 and 90 degrees for safe use.
- 8) Be painted (if metal), or otherwise treated to resist deterioration when location demands.

Cages or wells are required on fixed ladders that are more than 20 feet in unbroken length as well as those that start more than ten feet above the surrounding ground.

Fixed ladders can utilize ladder safety devices in lieu of a cage-guard on fixed ladders that are greater than 31 feet in length. Ladder safety devices must be designed to absorb the impact of a solid object weighing at least 500 lbs. in a free fall of 18 inches.

Ladder safety devices allow a climber to attach a restraint belt to a sliding fixture that travels along a carrier rail or cable that is anchored to the ladder. The traveling fixture will lock and suspend a person who slips and starts to fall.

A variation of the traveling fixture is a ladder belt with one or two snap hooks attached. This is not a climbing safety device, but is a positioning device that provides a means of securing a climber to a ladder and freeing the hands to work. No landing platform is required.

SAFETY PROCEDURE

The County of San Bernardino requires the use of head protection and body belts or a body harness with straps/lanyards, by employees working at elevated locations, on poles, towers, ladders or other structures except where other safeguards are used to prevent employees from falling.

At least two people will be present on the site at all times during work at elevated locations.

These individuals will remain within sight of each other.

A sample Code of Safe Practices has been developed; a copy of the sample Code of Safe Practices is located on page 185.4 of this policy. A department specific Code of Safe Practices must be developed and must be followed by all employees working on elevated locations. The department specific Code of Safe Practices shall be consistent with the sample Code of Safe Practices. A copy of this department specific Code of Safe Practices is to be inserted into the Elevated Locations Safety Manual and in the "Department" tab of the Safety & Health Manual.

EMERGENCY PROCEDURE

Emergency action may be initiated in the event of a severe or fatal accident, inclement weather, fire, earthquake or management's instruction to implement emergency procedures.

Prior to work at an elevated location, employees shall have available and accessible:

- A) The means to contact the closest emergency assistance facility.
- B) A chosen physician and/or hospital
- C) Coordinates for air rescue at isolated locations.
- D) A first aid kit
- E) The department's emergency action plan located in the Elevated Locations Safety Manual.

Medical and First Aid supplies recommended by the County Employee Health Officer and/or as set forth in T8 CCR, Construction Safety Orders, Section 1512 must be maintained and must be easily accessible. Minimum requirements for these first aid supplies are shown in the Appendix to the Employee Safety & Health Manual.

SITE CONDITIONS

Work from structures and elevating work platforms shall be discontinued whenever adverse weather, such as high winds (in excess of 15 mph), ice on the structure, or the progress of an electrical storm in the immediate vicinity, makes the work hazardous, except during emergency

restoration procedures. Electrical storms within five (5) miles of the work location are considered to be in the immediate vicinity.

EXCEPTION: Tree workers may work from elevating equipment at wind velocities up to the equipment limitations determined by the manufacturer(s).

In the event of an emergency restoration procedure, when inclement weather makes the restoration hazardous, the employee shall obtain authorization to continue from the supervisor directly responsible for the restoration.

ILLUMINATION

Lighting at elevated work locations must be provided in an adequate amount such that continuing work operations, routine observations, and the passage of employees can be carried out in a safe and healthful manner. Additional lighting must be provided as required for specific tasks. Furthermore, whenever natural light is inadequate, suitable artificial illumination must be provided.

MICROWAVE TRANSMISSIONS

The operation/task supervisor must require that transmitters be deactivated and locked out before employees open any associated wave guide. Employees will not open a wave guide that is connected to an energized source of microwave radiation.

Microwave transmission utilizes frequencies between 100 MHz (MHz= million hertz or mega hertz) and 30 GHz (GHz =billion hertz or giga hertz) inclusively.

Accessible areas associated with microwave communication systems, where the electromagnetic radiation (EMR) level exceeds the radiation levels given below, shall be posted in accordance with T8 CCR, General Industry Safety Orders, Section 5085; T8 CCR, Telecommunications Safety Orders, Section 8618; or ANSI Standard C95.2-1966.

The lower half of the warning symbol shall include the following:

"Radiation in this area may exceed hazard limitations and special precautions are required. Obtain specific instructions before entering."

EXPOSURE LIMITS

Workers shall not be exposed to RF energy from continuous wave or repetitively pulsed sources exceeding any of the following limits as averaged over any possible six minute (0.1 hour) period.

- 1) Power density: 10 milliwatts per square centimeter (mW/cm^2)
- 2) Energy density: 1.0 milliwatt hour per square centimeter (mW/cm^2)

Although the EMR level on and around the County of San Bernardino operated microwave towers is substantially below the T8 CCR and ANSI exposure limits, the county requires that workers shall not sit under or around the microwave dish unless actively engaged in work.

SITE INSPECTION CHECKLIST

Location: _____ Employee Name: _____

INSPECTION AREA	YES	NO
1. Hardhat. Strapped, No cracked shell, splits, punctures, damaged liner or parts, soiled.		
2. Body belt or Body harness. No worn parts or corrosion, webbing not frayed, broken or cut fibers/stitches. No tears, abrasions, mold, or discoloration. No broken plates holding D-rings, crushed leather, loose or broken rivets, broken threads, cracks or cuts, broken wrench keeper, defective buckle, burnt leather, or excessive strap wear. Not dirty or fluid soaked so as to hinder inspection. Proper equipment available for the job?		
3. Lanyards. No worn parts or corrosion, webbing not frayed, no broken or cut fibers/stitches. No tears, abrasions, mold, or discoloration. Snap keeper locks work properly to maintain the keeper in the locked position. Thimbles held by splice. No sign of elongation.		
4. Gloves. Appropriate for type of job to be performed.		
5. Foot Protection. Slip resistant. Without exposed toes, heels, or archways. Toe protection if required by the operation.		
6. Eye Protection. Appropriate for job to be performed.		
7. Traffic and pedestrians. Location below is cleared and/or barricaded.		
8. Ground debris. All debris is cleared.		
9. Electrical hazards. On or in the vicinity are locked out or blocked off. Required clearance from overhead lines is available.		
10. Location check. Deterioration of ladders, landings, railings; foreign attachments; improper attachments (bent steps, etc.); electrical hazards; limbs; vines; insects; leaning structures		
11. First Aid kit. Is stocked and ready for use.		
12. Communications. Equipment is readily available to communicate with or summon emergency personnel.		
13. Emergency Procedures. Contact previously made with chosen medical facility and physician. Location coordinates identified. Emergency telephone numbers available.		
14. Elevated Locations Safety Manual. Manual for this location on-site.		

Lead Climber: _____

Employee Signature: _____ Date: _____

WORKING IN ELEVATED LOCATIONS CODE OF SAFE PRACTICES

GENERAL SAFETY PRACTICES

For the protection and safety of all employees, the County of San Bernardino has established the following rules designed to prevent accidents and injuries. Compliance with these rules is mandatory. Documentation is made when the rules are distributed.

1. All accidents and injuries must be reported at the time of occurrence.
2. Machines, or equipment shall not be operated until employees are properly instructed on their operation.
3. Only authorized, trained and skilled personnel are permitted to perform work in elevated locations.
4. Horseplay, practical jokes, throwing things, distracting others at work, and unnecessary shouting are forbidden.
5. All spilled oil, grease, water, and other liquids, must be wiped up immediately and disposed of per department guidance.
6. Populated areas in which overhead maintenance is being performed will be blocked off and posted to prevent possible injury from falling objects. A barricade or posted area will not be entered except by those performing the work.
7. Any defective tool or equipment must be reported immediately to the lead person. Any defective tool or equipment will not be used until repaired or replaced.
8. Failure by an employee to comply with the safety rules will be grounds for corrective disciplinary action.

CLIMBING AND MANEUVERING ON TOWERS AND STRUCTURES.

1. Employees must be aware of and identify hazards that are pertinent to tower climbing. These hazards include: outriggers, antennas, guy cables, various sharp objects, etc.
2. Employees are trained to remain calm and consider their surroundings. With good physical condition and proper safety gear they can easily overcome any obstacles that might be encountered. Also, employees are reminded to work as part of a team that will provide the help necessary to accomplish the task.

PROTECTIVE EQUIPMENT

I HAVE READ AND UNDERSTAND THE PRECEDING SAFETY RULES. AS A COUNTY EMPLOYEE, I WILL FOLLOW THESE RULES, AS WELL AS OTHERS BROUGHT TO MY ATTENTION BY MY SUPERVISOR, AND WORK SAFELY.

1. All personal protective equipment listed for the type of work to be done and listed on the pre-climb checklist will be worn at all times.
2. Suitable eye protection will be worn by members of the ground crew applicable to the conditions encountered i.e., wind, dust, snow, ice.
3. At no time will the employee work in elevated locations without being attached by lanyard or other approved fall protection device.
4. Safety headgear will be worn when working on or in the vicinity of an elevated work location.
5. Safe shoes are required of all employees. Shoes with exposed toes, heels, or archways will not be permitted while working on elevated locations. Toe and/or metatarsal protection shall be appropriate for the tasks.
6. Inspection of all equipment and identification of hazards will be completed and documented before working on elevated locations. Identified hazards will be abated or guarded before work begins.
7. Tools will be carried on a tool belt, or in an approved tool bag for all work performed. A rope will be used to prevent tools from falling.

INSPECTION

1. Before any work is done at the location, the worksite safety inspection will be completed by the lead climber.
2. The lead climber listed on the inspection checklist will have total control of the climb and all work to be performed.

EMERGENCY PROCEDURES

1. The lead person will notify the communications center before work is done, in the event of an emergency, and after work is completed.
2. All medical emergencies will be reported immediately via 9-1-1 or the communications center must be called and the location of the emergency given.

COMMUNICATION

1. Standard hand signals and/or radio communicators must be used to maintain accurate contact.

PRINT NAME

SOCIAL SECURITY NUMBER

SIGNATURE

DATE

DEPARTMENT